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Short-range correlations in spin liquid in presence of Kondo scattering ^{*}

M.Kiselev¹, K.Kikoin², R.Oppermann¹

¹ *Institut für Theoretische Physik, Universität Würzburg, D-97074 Würzburg, Germany*

² *Department of Physics, Ben-Gurion University, Beer-Sheva 84 105, Israel*

The crossover from high-temperature paramagnetic state to low-temperature spin liquid state in Kondo lattice is studied by means of the real-time semi-fermionic Schwinger-Keldysh formalism [†]. The spectrum of Bose excitations in the uniform resonating valence bond (RVB) spin-liquid in the presence of strong Kondo scattering is calculated. It is shown that the one-site Kondo scattering suppresses the antiferromagnetic correlations in the Kondo lattice and stabilizes the spin liquid short range order. The influence of Kondo-renormalization on the spin diffusion coefficient is considered. We discuss also the possibility of spin-liquid - spin-glass transition in disordered AFM where disorder is associated with phase decoherence of the RVB correlator.

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[†]M.Kiselev and R.Oppermann. Phys.Rev.Lett. **85**, 5631 (2000)